LAMPIRAN A

UJI F KURVA BAKU

Replikasi 1

Konsentrasi	Absorbansi	x^2	y^2	xy
1,01	0,029	1,0201	0,0008	0,0293
3,03	0,031	9,1809	0,0010	0,0939
5,05	0,045	25,5025	0,0020	0,2273
15,15	0,104	229,5225	0,0108	1,5756
25,25	0,159	637,5625	0,0253	4,0148
35,35	0,191	1249,6225	0,0365	6,7519
50,50	0,266	2550,2500	0,0708	13,4330
65,65	0,350	4309,9225	0,1225	22,9775
80,80	0,424	6528,6400	0,1798	34,2592
95,95	0,485	9206,4025	0,2352	46,5358
		24747,6260	0,6847	129,8981

Replikasi 2

Konsentrasi	Absorbansi	x^2	y^2	xy
1,01	0,017	1,0201	0,0003	0,0172
3,03	0,021	9,1809	0,0004	0,0636
5,05	0,024	25,5025	0,0006	0,1212
15,15	0,077	229,5225	0,0059	1,1666
25,25	0,128	637,5625	0,0164	3,2320
35,35	0,176	1249,6225	0,0310	6,2216
50,50	0,252	2550,2500	0,0635	12,7260
65,65	0,321	4309,9225	0,1030	21,0737
80,80	0,391	6528,6400	0,1529	31,5928
95,95	0,462	9206,4025	0,2134	44,3289
		24747,6260	0,5875	120,5435

Replikasi 3

Konsentrasi	Absorbansi	x^2	y^2	Xy
1,01	0,024	1,0201	0,0006	0,0242
3,03	0,034	9,1809	0,0012	0,1030
5,05	0,051	25,5025	0,0026	0,2576
15,15	0,089	229,5225	0,0079	1,3484
25,25	0,142	637,5625	0,0202	3,5855
35,35	0,191	1249,6225	0,0365	6,7519
50,50	0,258	2550,2500	0,0666	13,0290
65,65	0,338	4309,9225	0,1142	22,1897
80,80	0,410	6528,6400	0,1681	33,1280
95,95	0,482	9206,4025	0,2323	46,2479
		24747,6260	0,6501	126,6651

Replikasi	Σx^2	Σxy	Σy^2	N	SSi	RDF
1	24747,6260	129,8981	0,6847	10	0,6794	9
2	24747,6260	120,5435	0,5875	10	0,5826	9
3	24747,6260	126,6651	0,6501	10	0,6450	9
	74242,8780	377,1067	1,9223		1,9070	

Contoh perhitungan:

Misal: replikasi 1

$SSi = Yc-[(XYc)^2 / Xc]$

$= 0,6847-(129,8981/24747,6260)$

$= 0,6794$

$SSc = \Sigma Yc-[(\Sigma XYc)^2 / \Sigma Xc]$

$= 1,9223-(377,1067/74242,8780)$

$=1,9172$

$SSp = SSi1+SSi2+SSi3$

$= 0,6794+0,5826+0,6450$

$= 1,9070$

$F_{hitung} = (SSc-SSp/k-1)/(SSp/12)$

$= (1,9172-1,9070/3-1)/(1,9070/12)$

$= 0,0719$

$F_{hitung} = 0,0719 < F_{tabel\ 0,05\ (2,27)} = 3,35$

Karena F hitung < F tabel maka tidak ada perbedaan bermakna antar persamaan regresi.

LAMPIRAN B

HASIL UJI AKURASI DALAM LARUTAN DAPAR FOSFAT ISOTONIS PH 6,8

Replikasi	%	Abs	C (ppm)	C Teoritis (ppm)	%Perolehan kembali
1	80	0,083	15,974	16,080	99,34
	100	0,102	19,961	20,200	98,82
	120	0,121	23,947	24,000	99,78
2	80	0,084	16,184	16,020	101,03
	100	0,104	20,381	20,200	100,89
	120	0,124	24,577	24,240	101,39
3	80	0,083	15,974	16,180	98,73
	100	0,105	20,171	20,280	99,46
	120	0,124	24,577	24,400	100,72

Contoh perhitungan:

Dari hasil serapan dimasukkan kedalam persamaan kurva baku terpilih yaitu:

$y = 0{,}0069 + 4{,}7662.10^{-3}x$

Dimana :

y = Serapan

x = Konsentrasi teramati

Kemudian hitung % perolehan kembali dengan rumus :

$$\frac{Csampel}{Cteoritis} \times 100\%$$

Misal: replikasi 1 pada 80%:

$$y = 0{,}0069 + 4{,}7662.10^{-3}x$$

$$0{,}083 = 0{,}0069 + 4{,}7662.10^{-3}x$$

$$x = 15{,}974$$

$$\%\text{perolehan kembali} = \frac{C}{C\text{ teoritis}} \times 100\%$$

$$= \frac{15{,}974}{16{,}080} \times 100\%$$

$$= 99{,}34\%$$

LAMPIRAN C

HASIL UJI PRESISI DALAM LARUTAN DAPAR FOSFAT ISOTONIS PH 6,8

Konsentrasi	Replikasi	Abs	C sampel (ppm)	C teoritis (ppm)	% Perolehan kembali
100%	1	0,102	19,961	20,200	98,82
	2	0,104	20,381	20,280	100,50
	3	0,104	20,381	20,200	100,89
	4	0,103	20,171	20,280	99,46
	5	0,102	19,961	20,080	99,41
	6	0,105	20,590	20,320	101,33
		$\bar{x}$			100,07
		SD			0,98
		KV			0,97

Contoh perhitungan:

Dari hasil serapan dimasukkan kedalam persamaan kurva baku terpilih yaitu:

$y = 0,0069 + 4,7662.10^{-3}x$

Dimana :

y = Serapan

x = Konsentrasi teramati

Kemudian hitung % perolehan kembali dengan rumus :

$$\frac{Csampel}{Cteoritis} \times 100\%$$

Misal: replikasi 1

$y = 0{,}0069 + 4{,}7662.10^{-3}x$

$0{,}102 = 0{,}0069 + 4{,}7662.10^{-3}x$

$x = 19{,}961$

$$\%\text{perolehan kembali} = \frac{C}{C\text{ teoritis}} \times 100\%$$

$$= \frac{19{,}961}{20{,}200} \times 100\%$$

$$= 98{,}82\%$$

LAMPIRAN D

HASIL PENETAPAN KADAR FILM ATENOLOL

Formula	Uji	Abs	C (mg/cm^2)	C teoritis (mg/cm^2)	Kadar (%)	$\bar{x} \pm SD$	KV (%)	Penimbangan (mg)
F1	1	0,106	1,040	1,015	102,490	104,64 ± 1,87	1,79	89,5
	2	0,108	1,061	1,006	105,501			88,7
	3	0,110	1,082	1,022	105,915			90,1
F2	1	0,107	1,050	1,018	103,178	104,63 ± 1,87	1,79	89,8
	2	0,110	1,082	1,014	106,745			89,4
	3	0,108	1,061	1,020	103,977			90,0
F3	1	0,110	1,082	1,022	105,915	104,86 ± 1,85	1,77	90,1
	2	0,109	1,071	1,011	105,947			89,2
	3	0,107	1,050	1,023	102,720			90,2
F4	1	0,102	0,998	1,011	98,686	100,64 ± 1,81	1,80	89,2
	2	0,104	1,019	1,009	100,987			89,0
	3	0,106	1,040	1,017	102,262			89,7

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	3	313,9061	104,6354	3,494745
Column 2	3	313,8995	104,6332	3,503232
Column 3	3	314,5824	104,8608	3,436034
Column 4	3	301,9336	100,6445	3,28468

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	37,28648	3	12,42883	3,62391	0,064521	4,066181
Within Groups	27,43738	8	3,429673			
Total	64,72386	11				

Contoh perhitungan:

C(ppm) = (Serapan – a) / b

= (0,105 – 0,006863439) / 0,00476615

= 20,590

Nilai a dan b berasal dari perhitungan regresi linear pada hari ke-2.

Misal: pada F1 uji 1

$$C_{teoritis} = \frac{\text{Penimbangan}}{\text{Luas sediaan}}$$

$$= \frac{89{,}5\ mg}{88{,}2\ cm^2}$$

$$= 1{,}015\ mg/cm^2$$

$$\%kadar = \frac{C}{C\ teoritis} \times 100\%$$

$$= \frac{1{,}040}{1{,}015} \times 100\%$$

$$= 102{,}49\%$$

LAMPIRAN E

HASIL UJI HOMOGENITAS FILM ATENOLOL

F	R	Tempat pengambilan						C teoritis (mg/cm^2)	Kadar (%)			$\bar{x} \pm SD$	KV
		1		2		3							
		Abs	C	Abs	C	Abs	C		1	2	3		
F1	I	0,106	1,040	0,108	1,061	0,110	1,082	1,015	102,46	104,53	106,60	104,53±2,07	1,98
	II	0,108	1,061	0,107	1,050	0,110	1,082	1,006	105,47	104,42	107,55	105,81±1,59	1,51
	III	0,110	1,082	0,113	1,113	0,114	1,124	1,022	105,87	108,95	109,97	108,26±2,14	1,97
F2	I	0,107	1,050	0,110	1,082	0,107	1,050	1,018	103,19	106,28	103,19	104,22±1,78	1,71
	II	0,110	1,082	0,113	1,113	0,114	1,124	1,014	106,70	109,81	110,84	109,12±2,15	1,97
	III	0,108	1,061	0,111	1,092	0,110	1,082	1,020	104,02	107,10	106,08	105,73±1,57	1,49
F3	I	0,110	1,082	0,114	1,124	0,113	1,113	1,022	105,87	109,97	108,95	108,26±2,14	1,97
	II	0,109	1,071	0,110	1,082	0,107	1,050	1,011	105,98	107,02	103,91	105,64±1,58	1,50
	III	0,107	1,050	1,105	1,030	1,104	1,019	1,023	102,69	100,64	99,61	100,98±1,57	1,55
F4	I	0,102	0,998	0,099	0,967	0,101	0,988	1,011	98,72	95,61	97,68	97,34±1,59	1,63
	II	0,104	1,019	1,101	0,988	0,103	1,009	1,009	100,99	97,87	99,95	99,61±1,59	1,59
	III	1,106	1,040	1,108	1,061	1,105	1,030	1,017	102,26	104,33	101,23	102,61±1,58	1,54

Keterangan: F = Formula, R = Replikasi, C = Konsentrasi sampel (mg/cm^2), Titik 1,2 dan 3 = Pengambilan sediaan pada tiga titik/tempat yang berbeda

LAMPIRAN F

HASIL UJI *SWELLING INDEX* SEDIAAN FILM ATENOLOL

Formula	Replikasi									$\bar{x} \pm SD$
	I			II			III			
	W1 (g)	W2 (g)	SI (*index*)	W1 (g)	W2 (g)	SI (*index*)	W1 (g)	W2 (g)	SI (*index*)	
F1	0,0447	0,1122	1,510	0,0431	0,1102	1,557	0,0422	0,1087	1,576	1,548 ± 0,034
F2	0,0392	0,1021	1,605	0,0417	0,1056	1,532	0,0358	0,0936	1,615	1,584 ± 0,045
F3	0,0655	0,1694	1,586	0,0635	0,1615	1,543	0,0630	0,1598	1,537	1,556 ± 0,027
F4	0,0761	0,1988	1,613	0,0799	0,2096	1,623	0,0775	0,2027	1,615	1,617 ± 0,005

Keterangan: W1 = berat awal sediaan; W2 = berat sediaan setelah mengembang

Contoh perhitungan:

Misal: F1 pada replikasi 1

$$SI = \frac{W_2 - W_1}{W_1}$$

$$= \frac{0{,}1122 - 0{,}0447}{0{,}0447}$$

$$= 1{,}510$$

LAMPIRAN G

HASIL UJI *ADHESION TIME* SEDIAAN FILM ATENOLOL

Formula	Batch	t (menit)	$\bar{x}$	SD
F1	1	209	205,33	23,71
	2	180		
	3	227		
F2	1	147	155,33	11,93
	2	169		
	3	150		
F3	1	360	360	0
	2	360		
	3	360		
F4	1	360	360	0
	2	360		
	3	360		

LAMPIRAN H

HASIL UJI PELEPASAN SEDIAAN FILM ATENOLOL FORMULA 1

t (jam)	Replikasi									Qt rata-rata	SD
	1			2			3				
	Abs	Cn' (ppm)	Qt (µg/cm^2)	Abs	Cn' (ppm)	Qt (µg/cm^2)	Abs	Cn' (ppm)	Qt (µg/cm^2)		
0,083	0,075	14,296	295,935	0,065	12,198	252,502	0,069	13,037	269,875	272,771	21,86
0,17	0,103	20,171	417,546	0,083	15,974	330,681	0,076	14,506	300,278	349,502	60,86
0,25	0,105	20,590	426,233	0,098	19,122	395,830	0,108	21,220	439,263	420,442	22,29
0,33	0,118	23,318	482,695	0,100	19,541	404,516	0,108	21,220	439,263	442,158	39,17
0,417	0,124	24,577	508,755	0,123	24,367	504,411	0,116	22,898	474,009	495,725	18,93
0,5	0,135	26,885	556,531	0,127	25,206	521,784	0,132	26,255	543,501	540,605	17,55
1	0,197	39,893	825,813	0,174	35,067	725,918	0,183	36,956	765,007	772,246	50,34
2	0,242	49,335	1021,260	0,215	43,670	903,992	0,233	47,446	982,170	969,140	59,71
3	0,255	52,062	1077,722	0,235	47,866	990,857	0,264	53,951	1116,811	1061,797	64,47
4	0,277	56,678	1173,274	0,274	56,049	1160,244	0,275	56,259	1164,587	1166,035	6,63
5	0,281	57,517	1190,647	0,283	57,937	1199,333	0,301	61,714	1277,512	1222,497	47,84
6	0,307	62,973	1303,572	0,313	64,231	1329,631	0,317	65,071	1347,004	1326,736	21,86

Contoh perhitungan:

Misal: Replikasi 1

$$Qt = \frac{65 \times C_{n'}}{3{,}14}$$

$$= \frac{65 \times 14{,}296}{3{,}14}$$

$$= 295{,}935 \ \mu g/cm^2$$

LAMPIRAN I

HASIL UJI PELEPASAN SEDIAAN FILM ATENOLOL FORMULA 2

t (jam)	Replikasi									Qt rata-rata	SD
	1			2			3				
	Abs	Cn' (ppm)	Qt (µg/cm^2)	Abs	Cn' (ppm)	Qt (µg/cm^2)	Abs	Cn' (ppm)	Qt (µg/cm^2)		
0,083	0,074	14,086	291,592	0,054	9,890	204,726	0,046	8,211	169,980	222,099	62,64
0,17	0,079	15,135	313,308	0,063	11,778	243,816	0,076	14,506	300,278	285,801	36,94
0,25	0,113	22,269	460,979	0,087	16,814	348,054	0,076	14,506	300,278	369,770	82,52
0,33	0,115	22,688	469,665	0,092	17,863	369,770	0,092	17,863	369,770	403,069	57,67
0,417	0,120	23,738	491,382	0,122	24,157	500,068	0,107	21,010	434,919	475,456	35,37
0,5	0,131	26,045	539,158	0,116	22,898	474,009	0,126	24,996	517,441	510,202	33,17
1	0,177	35,697	738,948	0,171	34,438	712,888	0,166	33,389	691,172	714,336	23,92
2	0,234	47,656	986,513	0,199	40,313	834,499	0,211	42,830	886,618	902,544	77,25
3	0,275	56,259	1164,587	0,243	49,545	1025,603	0,258	52,692	1090,752	1093,647	69,54
4	0,291	59,616	1234,079	0,273	55,839	1155,901	0,281	57,517	1190,647	1193,542	39,17
5	0,317	65,071	1347,004	0,309	63,392	1312,258	0,322	66,120	1368,720	1342,661	28,48
6	0,362	74,512	1542,451	0,353	72,624	1503,362	0,359	73,883	1529,421	1525,078	19,90

LAMPIRAN J

HASIL UJI PELEPASAN SEDIAAN FILM ATENOLOL FORMULA 3

t (jam)	Replikasi									Qt rata-rata	SD
	1			2			3				
	Abs	Cn' (ppm)	Qt (µg/cm^2)	Abs	Cn' (ppm)	Qt (µg/cm^2)	Abs	Cn' (ppm)	Qt (µg/cm^2)		
0,083	0,046	8,211	169,980	0,044	7,792	161,294	0,050	9,051	187,353	172,876	13,27
0,17	0,053	9,680	200,383	0,038	6,533	135,234	0,050	9,051	187,353	174,324	34,47
0,25	0,047	8,421	174,324	0,059	10,939	226,443	0,060	11,149	230,786	210,517	31,42
0,33	0,050	9,051	187,353	0,065	12,198	252,502	0,064	11,988	248,159	229,338	36,42
0,417	0,042	7,372	152,607	0,079	15,135	313,308	0,066	12,408	256,846	240,920	81,53
0,5	0,071	13,457	278,562	0,082	15,765	326,338	0,084	16,184	335,024	313,308	30,40
1	0,089	17,233	356,741	0,087	16,814	348,054	0,108	21,220	439,263	381,352	50,34
2	0,143	28,563	591,277	0,183	36,956	765,007	0,179	36,116	747,634	701,306	95,68
3	0,183	36,956	765,007	0,193	39,054	808,440	0,203	41,152	851,872	808,440	43,43
4	0,208	42,201	873,589	0,211	42,830	886,618	0,209	42,411	877,932	879,380	6,63
5	0,215	43,670	903,992	0,229	46,607	964,797	0,215	43,670	903,992	924,260	35,11
6	0,264	53,951	1116,811	0,248	50,594	1047,319	0,268	54,790	1134,184	1099,438	45,96

LAMPIRAN K

HASIL UJI PELEPASAN SEDIAAN FILM ATENOLOL FORMULA 4

t (jam)	Replikasi									Qt rata-rata	SD
	1			2			3				
	Abs	Cn' (ppm)	Qt (µg/cm^2)	Abs	Cn' (ppm)	Qt (µg/cm^2)	Abs	Cn' (ppm)	Qt (µg/cm^2)		
0,083	0,031	5,064	104,831	0,018	2,337	48,369	0,028	4,435	91,802	81,667	29,56
0,17	0,051	9,260	191,697	0,046	8,211	169,980	0,040	6,952	143,921	168,533	23,92
0,25	0,048	8,631	178,667	0,044	7,792	161,294	0,049	8,841	183,010	174,324	11,49
0,33	0,041	7,162	148,264	0,050	9,051	187,353	0,055	10,100	209,070	181,562	30,81
0,417	0,050	9,051	187,353	0,056	10,309	213,413	0,083	15,974	330,681	243,816	76,35
0,5	0,054	9,890	204,726	0,075	14,296	295,935	0,067	12,617	261,189	253,950	46,03
1	0,072	13,666	282,905	0,109	21,430	443,606	0,108	21,220	439,263	388,591	91,55
2	0,132	26,255	543,501	0,145	28,983	599,963	0,157	31,501	652,082	598,515	54,31
3	0,154	30,871	639,053	0,175	35,277	730,261	0,193	39,054	808,440	725,918	84,78
4	0,197	39,893	825,813	0,200	40,523	838,843	0,216	43,880	908,335	857,663	44,36
5	0,208	42,201	873,589	0,226	45,978	951,767	0,220	44,719	925,708	917,021	39,81
6	0,245	49,964	1034,289	0,258	52,692	1090,752	0,256	52,272	1082,065	1069,035	30,40

LAMPIRAN L

HASIL PERHITUNGAN FLUKS TIAP FORMULA

Formula	Batch	Fluks (µg/mL/jam)	$\bar{x}$	SD
F1	1	161,3	171,200	9,28
	2	172,6		
	3	179,7		
F2	1	201,9	207,167	7,15
	2	204,3		
	3	215,3		
F3	1	164,2	159,600	4,01
	2	156,8		
	3	157,8		
F4	1	156,5	161,400	4,37
	2	164,9		
	3	162,8		

LAMPIRAN M

ANALISA DESAIN FAKTORIAL *SWELLING INDEX*

Response 2 Swelling index
ANOVA for selected factorial model
Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	8.925E-003	3	2.975E-003	3.01	0.0943	Not significant
A-HPMC	*1.240E-003*	*1*	*1.240E-003*	*1.26*	*0.2949*	
B-PG	*7.203E-003*	*1*	*7.203E-003*	*7.29*	*0.0270*	
AB	*4.813E-004*	*1*	*4.813E-004*	*0.49*	*0.5048*	
Pure Error	7.899E-003	8	9.874E-004			
Cor Total	0.017	11				

The Model F-value of 3.01 implies there is a 9.43% chance that a "Model F-Value" this large could occur due to noise. Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case B are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Final Equation in Terms of Coded Factors:

Swelling index =

+1.58

+0.010 * A

+0.024 * B

+6.333E-003 * A * B

LAMPIRAN N

ANALISA DESAIN FAKTORIAL *ADHESION TIME*

Response 3 Adhesion time
ANOVA for selected factorial model
Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	1.006E+005	3	33530.11	190.33	< 0.0001	significant
A-HPMC	*96840.33*	*1*	*96840.33*	*549.71*	*< 0.0001*	
B-PG	*1875.00*	*1*	*1875.00*	*10.64*	*0.0115*	
AB	*1875.00*	*1*	*1875.00*	*10.64*	*0.0115*	
Pure Error	1409.33	8	176.17			
Cor Total	1.020E+005	11				

The Model F-value of 190.33 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case A, B, AB are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Final Equation in Terms of Coded Factors:

Adhesion time =

+270.17

+89.83 * A

-12.50 * B

+12.50 * A * B

LAMPIRAN O

ANALISA DESAIN FAKTORIAL PELEPASAN

Response 4 Release
ANOVA for selected factorial model
Analysis of variance table [Partial sum of squares - Type III]

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	4419.57	3	1473.19	34.36	< 0.0001	significant
A-HPMC	*2473.94*	*1*	*2473.94*	*57.71*	*< 0.0001*	
B-PG	*1073.52*	*1*	*1073.52*	*25.04*	*0.0010*	
AB	*872.11*	*1*	*872.11*	*20.34*	*0.0020*	
Pure Error	342.97	8	42.87			
Cor Total	4762.54	11				

The Model F-value of 34.36 implies the model is significant. There is only a 0.01% chance that a "Model F-Value" this large could occur due to noise.

Values of "Prob > F" less than 0.0500 indicate model terms are significant.

In this case A, B, AB are significant model terms.

Values greater than 0.1000 indicate the model terms are not significant.

If there are many insignificant model terms (not counting those required to support hierarchy), model reduction may improve your model.

Final Equation in Terms of Coded Factors:

Release =

+174.82

-14.36 * A

+9.46 * B

-8.52 * A * B

LAMPIRAN P

FORMULA OPTIMUM BERDASARKAN METODE *DESIGN EXPERT®*

Solution Number	HPMC	PG	Swelling Index	Adhesion Time	Release	Desirability	
1	-0.63	-0.72	1.55475	228.724	173.081	1.000	Selected
2	-0.33	0.89	1.59251	225.641	190.482	1.000	
3	-1.00	-1.00	1.54767	205.333	171.2	1.000	
4	-1.00	1.00	1.584	155.333	207.167	1.000	
5	-0.60	-0.50	1.55958	226.147	176.189	1.000	
6	-0.30	0.79	1.59082	230.229	188.67	1.000	
7	-0.54	-0.41	1.56183	229.899	176.733	1.000	
8	-0.73	0.29	1.57442	198.61	189.825	1.000	
9	-0.70	0.88	1.58663	188.889	198.404	1.000	
10	-0.81	0.93	1.58586	176.496	201.671	1.000	
11	-0.75	0.95	1.5871	182.264	200.562	1.000	
12	-0.45	0.32	1.57827	224.114	185.465	1.000	
13	-0.68	-0.40	1.56106	217.223	178.563	1.000	
14	-0.78	0.27	1.57338	194.2	190.362	1.000	
15	-0.40	-0.05	1.57096	235.152	179.968	1.000	
16	-0.82	-0.06	1.56659	198.133	185.607	1.000	
17	-0.52	-0.48	1.56054	232.568	175.625	1.000	
18	-0.38	0.95	1.59313	220.041	192.234	1.000	

19	-0.95	-0.50	1.55712	197.125	179.681	1.000
20	-0.43	0.86	1.59025	216.201	192.238	1.000
21	-0.38	0.80	1.58989	222.681	190.346	1.000
22	-0.36	0.77	1.58943	224.219	189.77	1.000
23	-0.86	-0.09	1.56547	195.246	185.566	1.000
24	-0.83	-0.90	1.5502	216.02	171.85	1.000
25	-0.92	-0.11	1.56455	189.776	186.191	1.000
26	-0.40	0.05	1.57311	233.135	181.291	1.000
27	-0.45	0.19	1.57555	226.014	183.883	1.000
28	-0.86	0.81	1.58278	173.98	200.851	1.000
29	-0.35	0.60	1.58591	228.807	187.301	1.000
30	-0.45	0.10	1.5735	227.646	182.64	1.000
31	-0.46	0.86	1.58993	213.332	192.904	1.000
32	-0.98	-0.78	1.5517	201.544	174.933	1.000
33	-0.43	-0.38	1.56333	237.932	176.07	1.000
34	-0.80	0.95	1.58626	176.676	201.815	1.000

LAMPIRAN Q

SERTIFIKAT ANALISIS ATENOLOL

calao

Certificate of Analysis

CAS NO. 29122-68-7 - HS NO. 2924.29.90.90

Product:	*ATENOLOL*		
Batch No.:	AM20110038	*Mfg. date:*	March 2010
Quantity:	100 KG	*Exp. date:*	February 2015

Test	Specifications	Results
Appearance	A white or almost white powder	Conform
Solubility	Sparingly soluble in water, soluble in ethanol, slightly soluble in methylene chloride	Conform
Identification	Identification A, B, D. a) Melting Point: 152°C to 155°C b) By UV: 1.15 TO 1.20 c) T.L.C.: to comply	154 °C. Conform Conform
Appearance of solution	1.0% w/v solution in water should be clear & not more intensely coloured than degree 6 of the range of reference solutions of the most appropriate colour.	Conform
Optical rotation	+ 0.10° to – 0.10°	+ 0.007°
Chlorides	NMT 0.1%	≤ 0.1%
Loss on drying	NMT 0.5% w/w	0.31%
Sulphated ash	NMT 0.1 % w/w	0.09%
Assay (On dry basis)	99.0 – 101.0% w/w	99.9%
Related substances	Any individual impurity: NTM 0.25% Total impurity: NMT 0.5%	0.05% 0.15%
Additional tests		
Bulk density (*) 1) Untapped 2) Tapped (By 50 strokes)	Informative	0.57 gm/ml 0.59 gm/ml

The product is conform to ☒ EP

(*) Bulk density determined as per in-house requirement

APPROVED

CALAO srl. - Via G.B. Grassi, 15 - 20157 Milano - Italy
Cap. Soc. € 260.000 i.v. - Reg. Imp. Milano 178510 - R.E.A. Milano 974088 - P. IVA/VAT IT 01122060153

Operator
Business Develop. & Sales
Medical
Regulatory Affairs & Service
Financial & Administration

Tel. +39 02 332078 1 Fax +39 02 33201613 E-mail: [illegible]
Tel. +39 02 332078 502 Fax +39 02 33201613 E-mail: customerservice@calao.it
Tel. +39 02 332078 500 Fax +39 02 3570027 E-mail: medical@calao.it
Tel. +39 02 332078 530 Fax +39 02 3570027 E-mail: regaff@calao.it
Tel. +39 02 332078 520 Fax +39 02 33201146 E-mail: admin@calao.it

LAMPIRAN R

TABEL UJI R

DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT	DEGREES OF FREEDOM (DF)	5 PERCENT	1 PERCENT
1	.997	1.000	24	.388	.496
2	.950	.990	25	.381	.487
3	.878	.959	26	.374	.478
4	.811	.917	27	.367	.470
5	.754	.874	28	.361	.463
6	.707	.834	29	.355	.456
7	.666	.798	30	.349	.449
8	.632	.765	35	.325	.418
9	.602	.735	40	.304	.393
10	.576	.708	48	.288	.372
11	.553	.684	50	.273	.354
12	.532	.661	60	.250	.325
13	.514	.641	70	.232	.302
14	.497	.623	80	.217	.283
15	.482	.606	90	.205	.267
16	.468	.590	100	.195	.254
17	.456	.575	125	.174	.228
18	.444	.561	150	.159	.208
19	.433	.549	200	.138	.181
20	.423	.537	300	.113	.148
21	.413	.526	400	.098	.128
22	.404	.515	500	.088	.115
23	.396	.505	1000	.062	.081

LAMPIRAN S

TABEL UJI F

TABEL DISTRIBUSI F UNTUK 5% DAN 1%

Baris atas untuk taraf signifikan 5%
Baris bawah untuk taraf signifikan 1%

V_2 = dk penyebut	V_1 = dk pembilang																						
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
1	161	200	216	225	230	234	237	239	241	242	243	244	245	246	248	249	250	251	252	253	253	254	254	254
	4052	4999	5403	5625	5764	5859	5928	5961	6022	6056	6082	6106	6142	61,69	6208	6234	6258	6286	6302	6323	6334	6352	6361	6366
2	18,51	19,00	19,16	19,25	19,30	19,33	19,36	19,37	19,38	19,39	19,40	19,41	19,42	19,43	19,44	19,45	19,46	19,47	19,47	19,48	19,49	19,49	19,50	19,50
	98,49	99,01	99,17	99,25	99,30	99,33	99,34	99,36	97,38	99,40	99,41	99,42	99,43	99,44	99,45	99,46	99,47	99,48	99,48	99,49	99,49	99,49	99,50	99,50
3	10,13	9,55	9,28	9,12	9,01	8,94	8,88	8,84	8,81	8,78	8,76	8,74	8,71	8,69	8,66	8,64	8,62	8,60	8,58	8,57	8,56	8,54	8,54	8,53
	34,12	30,81	29,46	28,71	28,24	27,91	27,67	27,49	27,34	27,23	27,13	27,05	26,92	26,83	26,69	26,60	26,50	26,41	26,30	26,27	26,23	26,18	26,14	26,12
4	7,71	6,94	6,59	6,39	6,26	6,16	6,09	6,04	6,00	5,96	5,93	5,91	5,87	5,84	5,80	5,77	5,74	5,71	5,70	5,68	5,66	5,65	5,64	5,53
	21,20	18,00	16,69	15,98	15,52	15,21	14,98	14,80	14,66	14,54	14,45	14,37	14,24	14,15	14,02	13,93	13,83	13,74	13,69	13,61	13,57	13,52	13,48	13,46
5	6,61	5,79	5,41	5,19	5,05	4,95	4,88	4,82	4,78	4,74	4,70	4,68	4,64	4,60	4,56	4,53	4,50	4,46	4,44	4,42	4,40	4,38	4,37	4,36
	16,26	13,27	12,06	11,39	10,97	10,67	10,45	10,27	10,15	10,05	9,96	9,89	9,77	9,68	9,55	9,47	9,38	9,29	9,24	9,17	9,13	9,07	9,04	9,02
6	5,99	5,14	4,76	4,53	4,39	4,28	4,21	4,15	4,10	4,06	4,03	4,00	3,96	3,92	3,87	3,84	3,81	3,77	3,75	3,72	3,71	3,69	3,68	3,67
	13,74	10,92	9,78	9,15	8,75	8,47	8,26	8,10	7,98	7,87	7,79	7,72	7,60	7,52	7,39	7,31	7,23	7,14	7,09	7,02	6,99	6,94	6,90	6,88
7	5,59	4,74	4,35	4,12	3,97	3,87	3,79	3,73	3,68	3,63	3,60	3,57	3,52	3,49	3,44	3,41	3,38	3,34	3,32	3,29	3,28	3,25	3,24	3,23
	12,25	9,55	8,45	7,85	7,46	7,19	7,00	6,84	6,71	6,62	6,54	6,47	6,35	6,27	6,15	6,07	5,98	5,90	5,85	5,78	5,75	5,70	5,67	5,65
8	5,32	4,46	4,07	3,84	3,69	3,58	3,50	3,44	3,39	3,34	3,31	3,28	3,23	3,20	3,15	3,12	3,08	3,05	3,03	3,00	2,98	2,96	2,94	2,93
	11,26	8,65	7,59	7,01	6,63	6,37	6,19	6,03	5,91	5,82	5,74	5,67	5,56	5,48	5,36	5,28	5,20	5,11	5,06	5,00	4,96	4,91	4,88	4,86
9	5,12	4,26	3,86	3,63	3,48	3,37	3,29	3,23	3,18	3,13	3,10	3,07	3,02	2,98	2,93	2,90	2,86	2,82	2,80	2,77	2,76	2,73	2,72	2,71
	10,56	8,02	6,99	6,42	6,06	5,80	5,62	5,47	5,35	5,26	5,18	5,11	5,00	4,92	4,80	4,73	4,61	4,56	4,51	4,45	4,41	4,36	4,33	4,34

V_2 = dk penyebut	V_1 = dk pembilang																					
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
10	4,96 10,04	4,10 7,56	3,71 6,55	3,48 5,99	3,33 5,64	3,22 5,39	3,14 5,21	3,07 5,06	3,02 4,95	2,97 4,85	2,94 4,78	2,91 4,71	2,86 4,60	2,82 4,52	2,77 4,41	2,74 4,33	2,70 4,25	2,67 4,17	2,64 4,12	2,61 4,05	2,59 4,01	2,56 3,96	2,55 3,93	2,54 3,91
11	4,84 9,65	3,98 7,20	3,59 6,22	3,36 5,67	3,20 5,32	3,09 5,07	3,01 4,88	2,95 4,74	2,90 4,63	2,86 4,54	2,82 4,46	2,79 4,40	2,74 4,29	2,70 4,21	2,65 4,10	2,61 4,02	2,57 3,94	2,53 3,86	2,50 3,80	2,47 3,74	2,45 3,70	2,42 3,66	2,41 3,62	2,40 3,60
12	4,75 9,33	3,88 6,93	3,49 5,95	3,26 5,41	3,11 5,06	3,00 4,82	2,92 4,65	2,85 4,50	2,80 4,39	2,76 4,30	2,72 4,22	2,69 4,16	2,64 4,05	2,60 3,98	2,54 3,86	2,50 3,78	2,46 3,70	2,42 3,61	2,40 3,56	2,36 3,49	2,35 3,46	2,32 3,41	2,31 3,38	2,30 3,36
13	4,67 9,07	3,80 6,70	3,41 5,74	3,18 5,20	3,02 4,86	2,92 4,62	2,84 4,44	2,77 4,30	2,72 4,19	2,67 4,10	2,63 4,02	2,60 3,96	2,55 3,85	2,51 3,78	2,46 3,67	2,42 3,59	2,38 3,51	2,34 3,42	2,32 3,37	2,28 3,30	2,26 3,27	2,24 3,21	2,22 3,18	2,21 3,16
14	4,60 8,86	3,74 6,51	3,34 5,56	3,11 5,03	2,96 4,69	2,85 4,46	2,77 4,28	2,70 4,14	2,65 4,03	2,60 3,94	2,56 3,86	2,53 3,80	2,48 3,70	2,44 3,62	2,39 3,51	2,35 3,43	2,31 3,34	2,27 3,26	2,24 3,21	2,21 3,14	2,19 3,11	2,16 3,06	2,14 3,02	2,13 3,00
15	4,54 8,68	3,68 6,36	3,29 5,42	3,06 4,89	2,90 4,56	2,79 4,32	2,70 4,14	2,64 4,00	2,59 3,89	2,55 3,80	2,51 3,73	2,48 3,67	2,43 3,56	2,39 3,48	2,33 3,36	2,29 3,29	2,25 3,20	2,21 3,12	2,18 3,07	2,15 3,00	2,12 2,97	2,10 2,92	2,08 2,89	2,07 2,87
16	4,49 8,53	3,63 6,23	3,24 5,29	3,01 4,77	2,85 4,44	2,74 4,20	2,66 4,03	2,59 3,89	2,54 3,78	2,49 3,69	2,45 3,61	2,42 3,55	2,37 3,45	2,33 3,37	2,28 3,25	2,24 3,18	2,20 3,10	2,16 3,01	2,13 2,96	2,09 2,89	2,07 2,86	2,04 2,80	2,02 2,77	2,01 2,75
17	4,45 8,40	3,59 6,11	3,20 5,18	2,96 4,67	2,81 4,34	2,70 4,10	2,62 3,93	2,55 3,79	2,50 3,68	2,45 3,59	2,41 3,52	2,38 3,45	2,33 3,35	2,29 3,27	2,23 3,16	2,19 3,08	2,15 3,00	2,11 2,92	2,08 2,86	2,04 2,79	2,02 2,76	1,99 2,70	1,97 2,67	1,96 2,65
18	4,41 8,28	3,55 6,01	3,16 5,09	2,93 4,58	2,77 4,25	2,66 4,01	2,58 3,85	2,51 3,71	2,46 3,60	2,41 3,51	2,37 3,44	2,34 3,37	2,29 3,27	2,25 3,19	2,19 3,07	2,15 3,00	2,11 2,91	2,07 2,83	2,04 2,78	2,00 2,71	1,98 2,68	1,95 2,62	1,93 2,59	1,92 2,57
19	4,38 8,18	3,52 5,93	3,13 5,01	2,90 4,50	2,74 4,17	2,63 3,94	2,55 3,77	2,48 3,63	2,43 3,52	2,38 3,43	2,34 3,36	2,31 3,30	2,26 3,19	2,21 3,12	2,15 3,00	2,11 2,92	2,07 2,84	2,02 2,76	2,00 2,70	1,96 2,63	1,94 2,60	1,91 2,54	1,90 2,51	1,88 2,49
20	4,35 8,10	3,49 5,85	3,10 4,94	2,87 4,43	2,71 4,10	2,60 3,87	2,52 3,71	2,45 3,56	2,40 3,45	2,35 3,37	2,31 3,30	2,26 3,23	2,23 3,13	2,18 3,05	2,12 2,94	2,08 2,86	2,04 2,77	1,99 2,69	1,96 2,63	1,92 2,56	1,90 2,53	1,87 2,47	1,85 2,44	1,84 2,42
21	4,32 8,02	3,47 5,78	3,07 4,87	2,84 4,37	2,68 4,04	2,57 3,81	2,49 3,65	2,42 3,51	2,37 3,40	2,32 3,31	2,28 3,24	2,25 3,17	2,20 3,07	2,15 2,99	2,09 2,88	2,05 2,80	2,00 2,72	1,96 2,63	1,93 2,58	1,89 2,51	1,87 2,47	1,84 2,42	1,82 2,38	1,81 2,36
22	4,30 7,94	3,44 5,72	3,05 4,82	2,82 4,31	2,66 3,99	2,55 3,76	2,47 3,59	2,40 3,45	2,35 3,35	2,30 3,26	2,26 3,18	2,23 3,12	2,18 3,02	2,13 2,94	2,07 2,83	2,03 2,75	1,98 2,67	1,93 2,58	1,91 2,53	1,87 2,46	1,84 2,42	1,81 2,37	1,80 2,33	1,78 2,31
23	4,28 7,88	3,42 5,66	3,03 4,76	2,80 4,26	2,64 3,94	2,53 3,71	2,45 3,54	2,38 3,41	2,32 3,30	2,28 3,21	2,24 3,14	2,20 3,07	2,14 2,97	2,10 2,89	2,04 2,78	2,00 2,70	1,96 2,62	1,91 2,53	1,88 2,48	1,84 2,41	1,82 2,37	1,79 2,32	1,77 2,28	1,76 2,26

V_2 = dk penyebut	V_1 = dk pembilang																					
	1	2	3	4	5	6	7	8	9	10	11	12	14	16	20	24	30	40	50	75	100	200	500	∞
24	4,26 7,82	3,40 5,61	3,01 4,72	2,78 4,22	2,62 3,90	2,51 3,67	2,43 3,50	2,36 3,36	2,30 3,25	2,26 3,17	2,22 3,09	2,18 3,03	2,13 2,93	2,09 2,85	2,02 2,74	1,98 2,66	1,94 2,58	1,89 2,49	1,86 2,44	1,82 2,36	1,80 2,33	1,76 2,27	1,74 2,23	1,73 2,21
25	4,24 7,77	3,38 5,57	2,99 4,68	2,76 4,18	2,60 3,86	2,49 3,63	2,41 3,46	2,34 3,32	2,28 3,21	2,24 3,13	2,20 3,05	2,16 2,99	2,11 2,89	2,06 2,81	2,00 2,70	1,96 2,62	1,92 2,54	1,87 2,45	1,84 2,40	1,80 2,32	1,77 2,29	1,74 2,23	1,72 2,19	1,71 2,17
26	4,22 7,72	3,37 5,53	2,89 4,64	2,74 4,14	2,59 3,82	2,47 3,59	2,39 3,42	2,32 3,29	2,27 3,17	2,22 3,09	2,18 3,02	2,15 2,96	2,10 2,86	2,05 2,77	1,99 2,66	1,95 2,58	1,90 2,50	1,85 2,41	1,82 2,36	1,78 2,28	1,76 2,25	1,72 2,19	1,70 2,15	1,69 2,13
27	4,21 7,68	3,35 5,49	2,96 4,60	2,73 4,11	2,57 3,79	2,46 3,56	2,37 3,39	2,30 3,26	2,25 3,14	2,20 3,06	2,16 2,98	2,13 2,93	2,08 2,83	2,03 2,74	1,97 2,63	1,93 2,55	1,88 2,47	1,84 2,38	1,80 2,33	1,76 2,25	1,74 2,21	1,71 2,16	1,68 2,12	1,67 2,10
28	4,20 7,64	3,34 5,45	2,95 4,57	2,71 4,07	2,56 3,76	2,44 3,53	2,36 3,36	2,29 3,23	3,24 3,11	2,19 3,03	2,15 2,95	2,12 2,90	2,06 2,80	2,02 2,71	1,96 2,60	1,91 2,52	1,87 2,44	1,81 2,35	1,78 2,30	1,75 2,22	,72 2,18	1,69 2,13	1,67 2,09	1,65 2,06
29	4,18 7,60	3,33 5,52	2,93 4,54	2,70 4,04	2,54 3,73	2,43 3,50	2,35 3,33	2,28 3,20	2,22 3,08	2,18 3,00	2,14 2,92	2,10 2,87	2,05 2,77	2,00 2,68	1,94 2,57	1,90 2,49	1,85 2,41	1,80 2,32	1,77 2,27	1,73 2,19	1,71 2,15	1,68 2,10	1,65 2,06	1,64 2,03
30	4,17 7,56	3,32 5,39	2,92 4,51	2,69 4,02	2,53 3,70	2,42 3,47	2,34 3,30	2,27 3,17	2,21 3,06	2,16 2,98	2,12 2,90	2,09 2,84	2,04 2,74	1,99 2,66	1,93 2,55	1,89 2,47	1,84 2,38	1,79 2,29	1,76 2,24	1,72 2,16	1,69 2,13	1,66 2,07	1,64 2,03	1,62 2,01
32	4,15 7,50	3,30 5,34	2,90 4,46	2,67 3,97	2,51 3,66	2,40 3,42	2,32 3,25	2,25 3,12	2,19 3,01	2,14 2,94	2,10 2,86	2,07 2,80	2,02 2,70	1,97 2,62	1,91 2,51	1,86 2,42	1,82 2,34	1,76 2,25	1,74 2,20	1,69 2,12	1,67 2,08	1,64 2,02	1,61 1,98	1,59 1,96
34	4,13 7,44	3,28 5,29	2,88 4,42	2,65 3,93	2,49 3,61	2,38 3,38	2,30 3,21	2,23 3,08	2,17 2,97	2,12 2,89	2,08 2,82	2,05 2,76	2,00 2,66	1,95 2,58	1,89 2,47	1,84 2,38	1,80 2,30	1,74 2,21	1,71 2,15	1,67 2,08	1,64 2,04	1,61 1,98	1,59 1,94	1,57 1,91
36	4,11 7,39	3,26 5,25	2,80 4,38	2,63 3,89	2,48 3,58	2,36 3,35	2,28 3,18	2,21 3,04	2,15 2,94	2,10 2,86	2,06 2,78	2,03 2,72	1,89 2,62	1,93 2,54	1,87 2,43	1,82 2,35	1,78 2,26	1,72 2,17	1,69 2,12	1,65 2,04	1,62 2,00	1,59 1,94	1,56 1,90	1,55 1,87
38	4,10 7,35	3,25 5,21	2,85 4,34	2,62 3,86	2,46 3,54	2,35 3,32	2,26 3,15	2,19 3,02	2,14 2,91	2,09 2,82	2,05 2,75	2,02 3,69	1,96 2,59	1,92 2,51	1,85 2,40	1,80 2,32	1,76 2,22	1,71 2,14	1,67 2,08	1,63 2,00	1,60 1,97	1,57 1,90	1,54 1,86	1,53 1,84
40	4,08 7,31	3,23 5,18	2,84 4,31	2,61 3,83	2,45 3,51	2,34 3,29	2,25 3,12	2,18 2,99	2,12 2,88	2,07 2,80	2,04 2,73	2,00 2,66	1,95 2,56	1,90 2,49	1,84 2,37	1,79 2,29	1,74 2,20	1,69 2,11	1,66 2,05	1,61 1,97	1,59 1,94	1,55 1,88	1,53 1,84	1,51 1,81
42	4,07 7,27	3,22 5,15	2,83 4,29	2,59 3,80	2,44 3,49	2,32 3,26	2,24 3,10	2,17 2,96	2,11 2,86	2,06 2,77	2,02 2,70	1,99 2,64	1,94 2,54	1,89 2,46	1,82 2,35	1,78 2,26	1,73 2,17	1,68 2,08	1,64 2,02	1,60 1,94	1,57 1,91	1,54 1,85	1,51 1,80	1,49 1,78
44	4,06 7,24	3,21 5,12	2,82 4,26	2,58 3,78	2,43 3,46	2,31 3,24	2,23 3,07	2,16 2,94	2,10 2,84	2,05 2,75	2,01 2,68	1,98 2,62	1,92 2,52	1,88 2,44	1,81 2,32	1,76 2,24	1,72 2,15	1,66 2,06	1,63 2,00	1,58 1,92	1,56 1,88	1,52 1,82	1,50 1,78	1,48 1,75